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STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

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WHEN WILL TUBERCULOSIS COME UNDER CONTROL?

The business of prophecy is always full of dangers. But now and then it is possible to make cautious and controlled forecasts where sufficient information of past and current performance is at hand. A few years ago, a projection was made of the probable future course of the tuberculosis deathrate in the United States. Using the facts available for 1900 to 1928, a projection for the deathrate up to the year 1937 was made and it was then estimated that in 1930, the rate would be under 70 per 100,000 and, possibly by 1937, the deathrate from tuberculosis would be under 40. The facts for the last few years bear out the accuracy of the estimate and give some assurance that the estimate for 1937 will not be far from the actual facts. A glance at the chart will show how well the figures for the last four or five years have kept within the charted course.

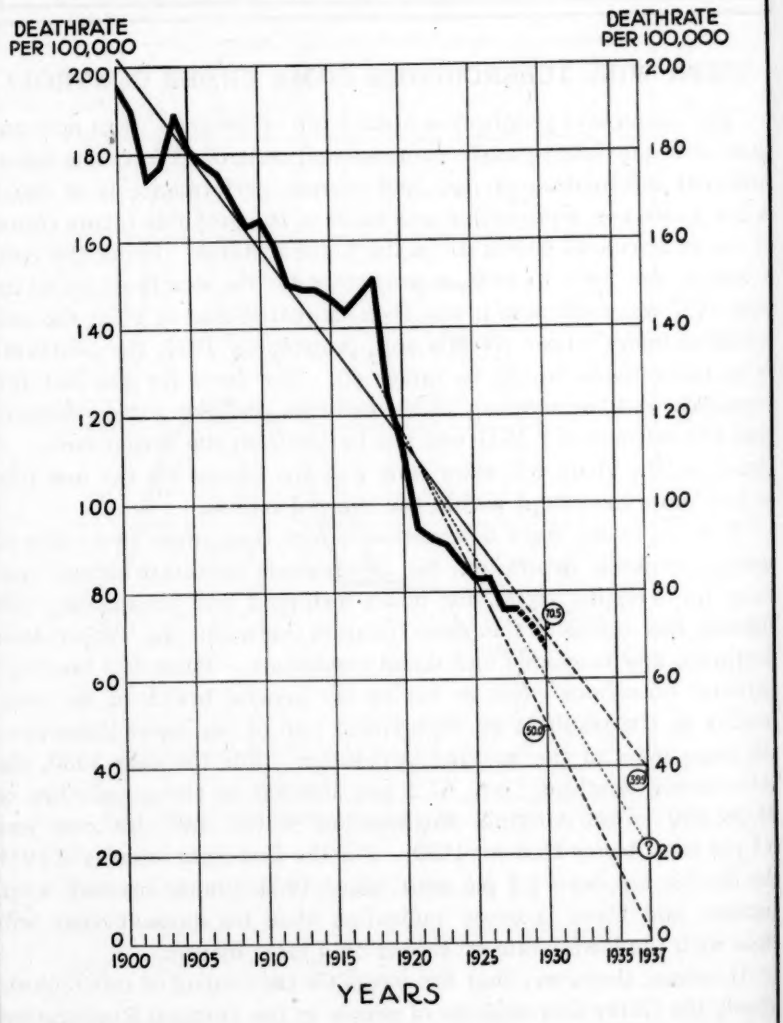
It is in many ways a remarkable fact that, after two years of serious economic depression, the tuberculosis deathrate should continue its declining trend, for much historical and present-day discussion has stressed the close relation between the tuberculosis deathrate and economic and social conditions. There has been apparently no serious effect as yet on the general health of the community as the result of unemployment and of the lower incomes of the large mass of the working population. For the year 1930, the tuberculosis deathrate was 67.2 per 100,000 in the population of 34,000,000 in the Original Registration States, and this rate was 6.5 per cent. below that for 1929. For the first eight months of 1931 the decline has been 7.4 per cent. since 1930 among insured wage earners, and there is every indication that the present year will close with the lowest rate on record by a large margin.

It seems, therefore, that the forces for the control of tuberculosis among the thirty-four millions of people in the Original Registration States have been so well organized and coordinated as to take care

TUBERCULOSIS - ALL FORMS

Prospective deathrates, 1929 to 1937

Original Registration States and District of Columbia



not only of the usual tuberculosis load, but also of accretions resulting from the economic depression. The effect of the work of the last 25 or 30 years has been cumulative in nature. The philanthropic and public health agencies of the country have continued to be alert to the necessity for caring for the tuberculous. The medical profession is becoming more and more skilled in the diagnosis and treatment of the disease. Sanatoria are expanding their facilities and their service results in arresting tuberculosis and in restoring patients to working capacity on a large scale. Many thousands of lives are saved annually as a result of this effort alone.

Fewer deaths from tuberculosis mean that there are fewer advanced cases capable of producing new infections in the community. Fewer infections imply a reduced number of breakdowns later in life. There is thus set up a beneficent circle which serves to protect the community. The country, as a whole, has not yet experienced the full effect of the work done over the past two or three decades. That is why we may be so hopeful as to the record of the immediate future for tuberculosis. We see, therefore, no reason at this writing to modify the earlier estimate that, in 1937, the tuberculosis death-rate will be less than 40 per 100,000 in certain of the northeastern states.

There is much evidence to show that the heaviest social burdens inflicted by tuberculosis have been materially eased. Among males, the major impact of the disease formerly fell upon the age period 35 to 39 years, when family responsibilities are greatest. In recent years, the greatest toll of tuberculosis among males has been exacted well beyond 40 years of age. It is significant that there has been no let-up in the tendency of tuberculosis to advance toward those ages where it will cease to act as one of the major sources of dependency and of family disruption.

HOME HAZARDS AND FATALITIES IN WAGE EARNERS' FAMILIES DURING 1930

In the United States, annually, about 30,000 accidental fatalities arise out of hazards in the home. That this death toll is close to twice the number of accidental fatalities in all the industries of the country is often overlooked by the general public. The home, that supposed haven of security, is the origin of nearly a third of all the fatal accidental injuries which occur each year.

Slight progress has been made in the United States in controlling this element in the nation's accident record. Among wage

earners' families insured in the Metropolitan Life Insurance Company the deathrate from domestic injuries was 14.0 per 100,000 policyholders in 1925. In 1930, the deathrate was 13.3, or a reduction of only 5 per cent. since 1925. This slightly encouraging result was contributed by the decline of mortality from accidental burns (24 per cent. decline since 1925) and from accidental gas poisonings (16 per cent. decline since 1925). A slight decline was recorded also for other accidental poisonings since 1925.

On the other hand, a considerable rise since 1925 was noted for fatal accidental falls in the home. The increase between 1925 and 1930 was 40 per cent.

The following table reviews the facts on home fatalities between 1925 and 1930 in the experience of the Industrial Department of this Company.

Deathrates per 100,000 from Fatal Accidents in the Home, 1925 to 1930. Metropolitan Life Insurance Company. Industrial Department.

Means of Injury*	1925 to 1930	1930	1929	1928	1927	1926	1925
All Fatal Accidents in the Home	13.3	13.3	13.0	12.3	13.0	14.2	14.0
Poisoning by food	.2	.2	.2	.3	.3	.3	.3
Other acute accidental poisonings	.7	.6	.6	.6	.7	.8	.8
Conflagration	.8	.9	.9	.7	.9	1.0	.7
Accidental burns	3.7	3.2	3.6	3.5	3.6	4.1	4.2
Accidental absorption of poisonous gas	1.9	1.6	1.8	1.9	1.9	2.6	1.9
Accidental drowning	.1	.1	.1	.1	.1	.1	.2
Traumatism by firearms	.3	.5	.4	.3	.3	.3	.4
Traumatism by cutting or piercing instruments	.1	.1	.1	.1	.1	.1	.1
Traumatism by fall	4.0	4.9	4.2	3.7	3.8	3.6	3.5
Other accidental fatalities	1.5	1.2	1.1	1.1	1.3	1.3	1.9

*Titles of the International List, 1920 Revision.

Domestic accident fatalities arise out of three major hazards. The circumstances leading to falls take 30 per cent. of the home deaths, burns and scalds account for 28 per cent., and poisonous gases, chiefly illuminating gas, are the agency in 15 per cent. of these home fatalities. Of the increasing number of fatalities from falls since 1925, by far the largest proportion result from tripping or slipping on stairs. Falls out of windows, or from balconies and

porches, out of bed or over chairs, also add to the domestic accident record.

Fortunately, the accident deathrate in the home has been declining for burns and scalds, and this may reflect the changes which have undoubtedly taken place in modernizing and safeguarding heating, kitchen and domestic laundry facilities. In parts of the country where grates and fireplaces were formerly the chief mode of domestic heating, the number of deaths reported annually from such agencies is declining. This indicates the abandonment of primitive heating appliances and the installation of central heating and other safer facilities.

The reduction in illuminating gas fatalities may be the result of the many advances made in recent years by the gas producing and gas appliance industry in safeguarding the use of gas in the home. Boards of Health in several communities addressed their attention some years ago to the leaky gas hose and since then, we are informed, effective regulations have been adopted in many cities regarding the sale and use of proper attachments for stoves and other domestic utilities employing gas as a fuel. Gas stoves have been improved in design, and, altogether, there has been distinct and satisfying progress in the safe use of this substance. This work has resulted in large part from the constructive effort of the American Gas Association and allied bodies, whose engineers have been studying for many years the safety aspects of the domestic use of illuminating gas.

There remain many opportunities for local communities to reduce still further the number of injuries and deaths arising out of home hazards. Health officers have a first rate opportunity to study the returns made to them on vital statistics records, and thus to determine the facts on the home injury problem in their communities. The health officer can take the initiative in uniting the available community facilities for building inspection, for safeguarding the sale and use of poisons, for protecting food supplies, and for teaching parents the lessons of home safety through the press, through women's clubs, parent-teacher associations and schools.

OUR AGING POPULATION AND THE PROSPECTIVE INCREASE IN THE CANCER DEATHRATE

The question has more than once been raised whether the increase in the deathrate from cancer in recent years might not be due, in part, or in whole, merely to the aging of the population.

It is a well known fact that the age distribution of our population has been shifting toward a preponderance of older people and that this shift is bound to continue for many years to come.

This aging of our population can and undoubtedly does affect the *total* deathrate from cancer, and, in a previous publication, we showed that, while this is an important factor in the situation, it is by no means the whole answer to the ever increasing deathrate. But the aging does not in any obvious and simple fashion affect the *specific* deathrate among persons of a given age group. Possibly the trend of the cancer deathrate at any specific age is subject to a secondary influence of the prolongation of life, the survival of cancer-prone persons who, fifty years ago, would have died either in childhood or adolescence and who now survive into the ages at which cancer is one of the dominating causes of death. Just to what extent this effect occurs it is difficult to say. But the other effect, the *increase* of the *total* deathrate from cancer through the aging of the population, is a perfectly definite phenomenon which is quite inevitable and the extent of which can be fairly well gauged by computation.

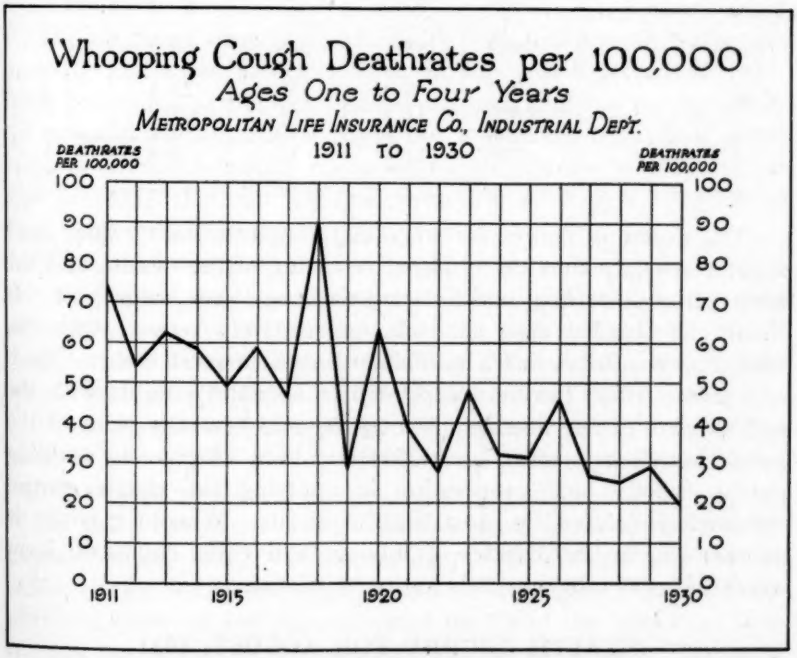
Taking the specific deathrates by age for cancer in the white female population in the United States in the year 1929, and applying these to successive age distributions which we have calculated for successive decennia of the United States population up to the year 2000, we find the deathrates from cancer per 100,000 white females at all ages, as follows: 1930, 117; 1940, 128; 1950, 147; 1960, 167; 1970, 180; 1980, 188; 1990, 192 and 2000, 192.

These figures are startling. The fact that these estimates of the crude cancer deathrate among females show for the year 2000 a rate over 60 per cent. in excess of the current rate is a result which calls for our most sericus thought. This prospective increase is, of course, the inevitable result of the anticipated aging of the population and has been computed on the conservative assumption that the age-specific deathrates from cancer will not change in the next seventy years. It is, of course, possible that, long before the year 2000 is reached, medical science and practice will have had a marked effect on both the preventability and cure of the disease. Such gains will tend to reduce the effect of an ever aging population. On the other hand, there is as yet little evidence of progress in this direction and even the age-specific deathrates themselves are now on the up-grade. Making all allowance for future discoveries and for some uncertainty of our estimate of future age distributions, we

cannot avoid serious concern regarding the outlook for the cancer deathrate in coming years. If any further inducement were needed to urge on our research workers and public health officials in their efforts to control cancer, surely the figures set forth above must furnish a most effective stimulus in that direction.

DECLINING WHOOPING COUGH MORTALITY IN RECENT YEARS

Mortality from whooping cough among young policyholders of the Metropolitan Life Insurance Company has been declining steadily since 1911. For children from one to four years of age, the deathrate for this disease in the years 1926 to 1930 was 50 per cent. less than in the period 1911 to 1915. In 1930, the deathrate was the lowest ever recorded for this disease among insured children. The sharp fall in whooping cough mortality is evident from the chart below.



Children under age three suffer 92 per cent. of the deaths, and nearly 60 per cent. of the mortality occurs among infants less than one year old. Even among infants there has been a satisfactory decline in whooping cough deaths. In the general population of

New York State the average deathrate in 1911-1915 among infants under one year was 189.1 per 100,000; in 1926-1930, the figure for whooping cough was 132.0 per 100,000, a reduction of 30.2 per cent.

In point of case-incidence, the maximum prevalence of whooping cough seems to be at ages three to six years. But the case-fatality is highest among children less than one year of age. An interesting table from New Jersey data is shown below:

Cases, Deaths, and Deaths per 100 Cases Under Five Years of Age. Whooping Cough in New Jersey, 1927 to 1929.

Age	Cases		Deaths		Deaths per 100 Cases
	Number	Per Cent. of Total All Ages	Number	Per Cent. of Total All Ages	
Total—All Ages..	23,355	100.0	544	100.0	2.3
Total Under 5....	12,428	53.2	525	96.5	4.2
Under 1.....	1,893	8.1	306	56.3	16.2
1.....	2,127	9.1	138	25.4	6.5
2.....	2,590	11.1	54	9.9	2.1
3.....	2,896	12.4	17	3.1	.6
4.....	2,922	12.5	10	1.8	.3

The declining figures for whooping cough mortality since 1911 suggest strongly that the required reporting of the disease and the adoption of placarding and isolation measures have borne fruit. It should be recalled that only in comparatively recent years has whooping cough become a notifiable disease in most areas. Much educational effort has been expended to acquaint parents with the real dangers of the disease. It may be said that the work of the public health movement since 1911 has been effective in arousing public response and cooperation in applying the simple control measures advocated by most health officials. Whooping cough is another one of the diseases of infancy and early childhood from which high mortality need no longer be tolerated.

HEALTH RECORD FOR AUGUST, 1931

Never before have general health conditions among the Industrial policyholders of the Metropolitan Life Insurance Company been so favorable as in August of this year. The deathrate was only 7.4 per 1,000. The previous low figure of 7.5 per 1,000 for this month

was recorded in August, 1924. For five consecutive months in 1931, the mortality has shown improvement over the figure for the corresponding month of 1930. The effect of this favorable experience, during the spring and summer, has been almost enough to offset the increased mortality of the early months of the current year, due to the influenza epidemic of last winter. For the eight elapsed months of 1931, a cumulative deathrate of 9.1 per 1,000 has been recorded, which is only 1 per cent. above the figure recorded for the same period last year.

Among policyholders living west of the Rocky Mountains, the year-to-date deathrate at the end of August was 6.4 per 1,000, as compared with 6.7 in 1930. In Canada, the cumulative mortality rate dropped from 8.9 in 1930 to 8.2 in 1931. The excellent health conditions which have prevailed so far this year are indeed remarkable, in view of prevailing employment conditions. This factor would ordinarily have led us to expect an increase in the mortality rate.

The continued drop in the mortality from tuberculosis is the outstanding and most favorable item in the health record of 1931. With two-thirds of the year behind us, including the seasons when the tuberculosis deathrate is highest, it is now safe to say that a new minimal deathrate will be registered for this disease in 1931. It is also probable that the greatest year-to-year decline recorded in many years will be registered this year.

The cumulative deathrate for diphtheria at the end of August was only 4.1 per 100,000, a decline of more than one-third, as compared with 1930 figure for the like period of the year. Diphtheria, so far this year, has a lower deathrate than measles, and the rate is only slightly in excess of those for scarlet fever and whooping cough.

Other diseases which bid fair to register new minimal deathrates in 1931 are typhoid fever, diarrheal complaints and conditions related to childbearing.

On the other hand, several diseases show more or less marked increases in mortality. Influenza, due to the widespread outbreak of last winter, is the most conspicuous among these. The influenza situation, however, has since adjusted itself and the rates have been running low since the beginning of the spring season. The most unfavorable item in the 1931 mortality record is cancer, whose cumulative deathrate has increased 6.6 per cent. since 1930—an unusually large rise in any single year. The upward trend in the diabetes deathrate, observed since 1924, is still unchecked. The

increase in diabetes mortality may be found to be concentrated largely in the later ages of life, and not in youth where insulin has so far shown such favorable results. The rise in 1931 bids fair, however, to exceed any year-to-year increase recorded for several years.

Small increases are shown in the 1931 deathrate for both suicides and homicides. All forms of accidents, combined, show a slight drop this year; but the deathrate from automobile fatalities continues to rise and will probably attain a new high point by the time the record for 1931 is completed.

The deathrate in the general population of the large cities of the United States, in August, was 10.3 per 1,000 estimated population, as compared with 11.0, in July, and 10.3 in August of last year. The reportable diseases showing increased prevalence in August, as compared with July, were typhoid fever and poliomyelitis; there were fewer cases of diphtheria, influenza, measles, scarlet fever and smallpox. Comparison with August, 1930, shows greater prevalence of influenza, measles, poliomyelitis and scarlet fever, together with fewer cases of diphtheria, smallpox and typhoid fever. These statements are based on the number of cases reported during the first four weeks of July and August, 1931, and of August, 1930.

The following table shows the mortality among Industrial policyholders for August, 1931; July, 1931, and August, 1930, together with the cumulative rate for the first eight months of each year.

METROPOLITAN LIFE INSURANCE COMPANY

Deathrates* per 100,000 for Principal Causes, Premium-Paying Business in Industrial Department (Annual Basis)

MONTHS OF AUGUST, 1931; JULY, 1931, AND OF AUGUST, 1930

CAUSES OF DEATH	ANNUAL RATE PER 100,000 LIVES EXPOSED*				
	August 1931	July 1931	August 1930	Cumulative, January to August	
				1931	1930
TOTAL—ALL CAUSES	735.5	831.7	761.1	909.7	903.6
Typhoid fever	3.2	1.7	3.3	1.6	1.7
Measles	.7	3.2	.6	4.2	3.9
Scarlet fever	1.7	2.6	1.1	3.6	2.9
Whooping cough	4.2	2.7	5.4	3.6	4.8
Diphtheria	1.9	3.0	3.0	4.1	6.3
Influenza	4.6	4.9	3.4	26.7	17.0
Tuberculosis (All forms)	63.5	74.4	72.5	78.5	84.8
Tuberculosis of resp'y system	55.7	64.9	63.1	69.2	73.6
Cancer	76.1	82.9	74.5	82.2	77.1
Diabetes mellitus	16.9	16.6	16.3	21.2	19.0
Cerebral hemorrhage	49.3	59.6	54.3	62.7	61.6
Organic diseases of heart	118.3	134.7	114.2	153.5	149.9
Pneumonia (All forms)	27.6	37.0	29.8	86.3	85.5
Other respiratory diseases	7.4	9.1	8.4	11.3	11.9
Diarrhea and enteritis	27.1	16.4	32.6	13.1	16.5
Bright's Disease (Chronic nephritis)	51.9	60.8	59.3	67.9	69.9
Puerperal state	9.1	10.2	10.9	11.4	12.6
Suicides	9.1	9.6	9.4	9.7	9.6
Homicides	7.5	7.0	6.4	6.8	6.5
Other external causes (excluding suicides and homicides)	70.2	89.7	76.6	61.3	63.3
Traumatism by automobiles	22.6	25.1	22.7	20.4	19.5
All other causes	185.0	205.5	179.0	200.3	198.6

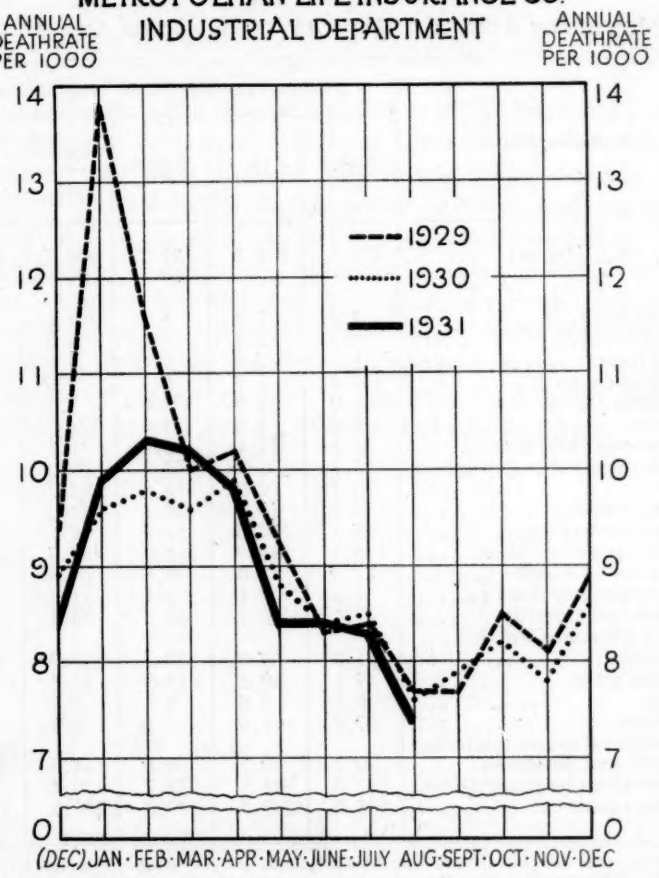
*All figures in this table include insured infants under one year of age. The rates for 1931 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

Correspondence on the subjects discussed in these BULLETINS may be addressed to: The Editor,

STATISTICAL BULLETIN,
Metropolitan Life Insurance Company,
1 Madison Avenue, New York City

DEATHRATES
FROM ALL CAUSES

METROPOLITAN LIFE INSURANCE CO.
INDUSTRIAL DEPARTMENT



1929	13.8	11.6	10.0	10.2	9.2	8.3	8.4	7.7	7.7	8.5	8.1	8.9
1930	9.6	9.8	9.6	9.9	8.8	8.4	8.5	7.6	7.9	8.2	7.8	8.6
1931*	9.9	10.3	10.2	9.8	8.4	8.4	8.3	7.4				

*Rates for 1931 are provisional

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